

**REMARKS**

Claims 6, 16 and 17 currently appear in this application. The Office Action of March 17, 2008, has been carefully studied. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicant respectfully requests favorable reconsideration, entry of the present amendment, and formal allowance of the claims.

**Amendments**

Claims 1-5 and 7-15 have been cancelled. Claim 6 has been placed into independent form by incorporating therein the subject matter of claim 1, and the temperature, viscosity, bacterial count, pH, pullulan concentration and molecular weight have been further restricted.

Support for the amendments can be found at page 10, second line from the bottom (temperature); page 8, lines 3-22 (viscosity); page 16, Table 1 (see Sample No. 2 placed at 12°C for the bacterial count); page 8, second line from the bottom (upper limit of pH 7.0); page 17, Table 1 (initial pH of the samples for the lower limit of

pH 5.9); page 7, lines 15-17 (pullulan concentration);  
and page 7, lines 13-15 (molecular weight).

New claims 26 and 17 correspond to original  
claims 4 and 5, respectively.

### **Art Rejections**

Claims 1-15 are rejected under 35 U.S.C. 103(a)  
as being unpatentable over Kato et al., U.S. 3,921,591.

This rejection is respectfully traversed.  
Claims 1-5 and 7-15 have been cancelled, and claim 6 has  
been amended to distinguish the subject matter claimed  
from the disclosure of Kato.

Amended claim 6 defines a method for  
transporting a high pullulan content liquid whereby the  
high pullulan content liquid remains stable during  
transport. In order to maintain the stability of the  
liquid during transport, the high pullulan content liquid  
has the following characteristics:

- a. viscosity of 2.5 to 200mm<sup>2</sup>/s;
- b. common bacterial count of less than 31  
cells/g of product;
- c. pH of 5.9 to 7.0;

- d. pullulan concentration of 25 to 40% (w/w);  
and
- e. a weight-average molecular weight of 10,000  
to 50,000.

Transport is conducted under the specified temperature conditions of 8 to 12°C.

In contrast to this, Kato discloses pullulan products that are not in liquid form but in solid form. While Kato originally obtains pullulan in liquid form, it should be noted that this pullulan is not a final product, but is merely a culture obtained by proliferating the microorganisms capable of producing pullulan in liquid culture media. There is no intention in Kato to distribute this culture solution as such. The culture solution of Kato is not in marketable condition; Kato discloses at column 1, lines 39-48, that the process disclosed is for producing pullulan which can be readily purified and may be converted to products of low viscosity. Alternatively the pullulan can be produced with a molecular weigh of more than two million in order to produce shaped articles such as films, sheets, and

fibers. There is nothing in Kato regarding transporting pullulan in commercially usable form.

The present specification at page 2, lines 5-20, notes that all pullulan products conventionally obtained are in solid form. Unlike solid pullulan products, liquid pullulan products have been recognized to be susceptible to microbial contamination and change in pH and viscosity, so that transport of these liquid products has been believed to be impossible, as the viscosity of liquid pullulan products will logarithmically increase with the increase of pullulan concentration. Kato does not recognize this problem and provide a solution thereto, as Kato merely discloses a method of producing pullulan, and not a method for producing pullulan in commercially usable, transportable form.

Additionally, it is understood from "final pH" recited in Tables 1-a, 1-b and 6 of Kato that the culture has a pH in the range of 3.2 to 5.6, which is lower than the pH range of 5.9 to 7.0 as recited in amended claim 6. This is another distinguishing feature of the high concentration pullulan liquid claimed herein from the culture containing pullulan as disclosed by Kato.

As shown in Table 1 at pages 16-17 of the present specification, the high pullulan concentration liquid as recited in amended claim 6 maintains substantially the same levels of viable bacteria count, viscosity, and pH, even after 13 weeks at a temperature of 6 to 12°C. Please note that samples 1 and 2 in Table 1 are not bacteria-free when the holding is begun, but that the bacterial count after 13 weeks is still quite small.

Submitted herewith is a graph that illustrates the relationship between temperature, cell count, and standing time shown in Table 1. It is clear from this graph that the cell counts in the samples maintained at 6-12°C are quite small.

Claim 6 has been amended to recite that the method is for transporting high pullulan content liquid whereby the high pullulan content liquid remains stable during transport. It is the temperature under which the liquid is maintained as well as the concentration of the liquid, the molecular weight of the pullulan, and the pH of the liquid that combine to produce a stable high-pullulan content liquid that can be transported and used

immediately upon delivery. There is nothing ion Kato that discloses or suggests a stable pullulan liquid.

In view of the above, it is respectfully submitted that the claims are now in condition for allowance, and favorable action thereon is earnestly solicited.

Respectfully submitted,

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Cell count (cells/g)

12000  
10000  
8000  
6000  
4000  
2000  
0

